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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/662,704

09/15/2000

Shusuke Kaya

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02/27/2003

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EXAMINER

JACKSON, CORNELIUS H

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/662,704

Applicant(s)

KAYAB ET AL.

Examiner

Cornelius H. Jackson

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

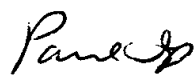
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Acknowledgment

1. Acknowledgment is made that applicant's Response, filed on 25 October 2002, has been entered. Claims 1-19 are now pending in the present application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 6-10 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (6067310) and Itoh et al. (6249534). Hashimoto et al. teach a semiconductor laser device **Figs. 1 and 11** comprising a semiconductor multi-layer film **1-10** formed by laminating optical confinement layers **3,5** and active layers **4** so as to dispose each of the active layers **4** between the optical confinement layers **3,5**, wherein one of the opposite ends perpendicular to the junction planes of the individual layers in the semiconductor multi-layer film **1-10** is coated with a low reflection film **20** on one end and the other end with a high reflection film **30**, wherein the low reflection film **20** contains a film comprised of at least Al_2O_3 , **see col. 4, lines 26-29**. Hashimoto et al. fail to teach that the low reflection film has a resistivity of $1 \times 10^{12} \Omega\text{m}$ or more. Itoh et al. teach a reflection film having a resistivity of $1 \times 10^{12} \Omega\text{m}$ or more,

Art Unit: 2828

see c. I. 7, lines 22-33 and why one of ordinary skill in the art would use a reflection film having a resistivity of $1 \times 10^{12} \Omega\text{m}$ or more, **see col. 6, lines 47-58, and col. 7, lines 28-31**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teachings of Itoh et al. to the device of Hashimoto et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 9 and 18, it was well known at the time the invention was made to have a stoichiometric ratio composition for the film comprised of Al_2O_3 to obtain a desired refractive index.

Regarding claims 2 and 10, Hashimoto et al. teach the reflection film **20** is formed from a single layer, **see Figs. 1 and 11**.

Regarding claim 6 and 14, Hashimoto et al. teach the high reflection film contains a film comprised of at least Al_2O_3 , **see col. 4, lines 26-29**.

Regarding claims 7-8, 15-16 and 19, Hashimoto teach all the stated limitations, **see col. 3, line 65-col. 4, line 2 and col. 4, lines 26-29**.

Regarding claim 16, the presence of process limitations on product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to the product. *In re Stephens* 145 USPQ 656 (CCPA 1965).

4. Claims 3-5 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (6067310) and Itoh et al. (6249534) as applied to claims 1 and 9 above, and further in view of Chand et al. (5440575).

Art Unit: 2828

Regarding claims 3 and 11, Hashimoto et al. and Itoh et al. teach all the stated limitation except for the low reflection film is formed from a plurality of layers. Chand et al. teach one of ordinary skill in the art, in order to obtain a desired reflectivity, can be combined with one or more layers of other dielectric or semiconductor materials. Therefore it would have been a matter of obvious design choice.

Regarding claims 4-5 and 12-13, Hashimoto teach a multiplayer reflecting film comprising Al₂O₃ and Si, α -Si or SiN, **see col. 3, line 65-col. 4, line 2 and col. 4, lines 26-29**. According to Chand et al. one of ordinary skill in the art can combined these layers of dielectric materials to obtain a desired (low) reflectivity.

Response to Arguments

5. Applicant's arguments filed 25 October 2002 have been fully considered but they are not persuasive.

Applicant argued the following:

a. None of the cited references discuss how the combination of this particular aluminum oxide film with a restriction on resistivity in any way effects the operation reliability of a such a device.

b. In no way does the prior art teach or even suggest the claimed structure provides the superior reliability of a semiconductor laser device.

c. Itoh discloses a resistivity range for the GaN semiconductor layer used in the facet protective layer.

Art Unit: 2828

d. The outstanding Office action has not created a prima facie case of obviousness with regard to independent claim 9.

Examiner reply to Applicant's arguments are as follows:

a. Hashimoto teaches the device with the aluminum oxide film, therefore the device is known. It has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). And as Itoh taught a preferable range for a Nitride based protective film, it is inherent that the aluminum oxide film of Hashimoto has a preferable range.

b. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

c. See the reply to a. above.

d. Prior art reference, Chakrabarti et al. (4749255), was provided showing that it was well known at the time the invention was made to have a stoichiometric ratio composition for the film comprised of Al_2O_3 to obtain a desired refractive index.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chakrabarti et al. (4749255) teach coatings for semiconductor

Art Unit: 2828

laser devices (optical devices) and the purpose of having a stoichiometric ratio composition, **see col. 1, lines 9-40.**

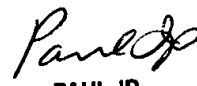
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.


chj

February 21, 2003


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